

### **REMARKS**

This responds to the Office Action mailed on December 14, 2005, and the references cited therewith.

Claims 1, 8, 9, 10 and 20 are amended. Claims 1-24 are now pending in this application.

#### **§103 Rejection of the Claims**

Claims 1-5 and 7-21 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Onischenko (WO 02/079863 A2) in view of McCaughan et al. (US 6,545,791 B1). This rejection is respectfully traversed in view of the above amendments. The amendments make it clear that the isolation is an optical isolation versus the electrical isolation of McCaughan. the "isolation trench" in McCaughan, refers to lithium niobate modulators and the use of trenches to focus the electric field in the waveguides. The currently claimed device and method works by using the plasma dispersion effect, that is, by changing the concentration of carriers, not the electric field, and, in this case, the use of the optically isolating trenches is to confine or focus carriers, not an electric field. Thus, the combination of references lacks at least one element, and the rejection should be withdrawn.

Claims 6 and 22-24 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Onischenko (WO 02/079863 A2) in view of McCaughan et al. (US 6,545,791 B1) as applied to claims above, and further in view of Comfort et al. (US 5,308,785). This rejection is respectfully traversed in view of the above amendments. As indicated above, McCaughan provides a form of electrical isolation. The isolation trench of Comfort et al., refers to SiGe FET and Bipolar transistors, and effectively, the isolation improves the efficiency of those devices. In the current claims, the optical isolation improves the "efficiency" of the pin, but in the sense of confining or accumulating carriers in the cavity region in order to obtain a higher refractive index. That is, the term "efficiency" is not the same for a FET and for the claimed pin/cavity device. What is claimed is an optical isolation that provides carrier confinement or accumulation of carriers to increase the index of refraction in the cavity region. Thus, the combination of references lacks at least one element, and the rejection should be withdrawn.

**CONCLUSION**

Applicant respectfully submits that the claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6905 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

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By their Representatives,

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Date April 13, 2006

By Monique M. Perdok Shonka  
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**CERTIFICATE UNDER 37 CFR 1.8:** The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 13<sup>th</sup> day of April, 2006.

Name

Signature